06-096 DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR QUALITY CONTROL

CHAPTER 116: PROHIBITED DISPERSION TECHNIQUES

SUMMARY: This regulation specifies stack height and dispersion techniques requirements in the licensing of air emission sources. This regulation also defines where air quality standards have to be met.

1. Ambient air quality standards; compliance location. The applicant shall demonstrate that ambient air quality standards will be met at all locations (including, where appropriate, elevated receptors) beyond the production area of the applicant source.

A. The term "production area" shall mean a contiguous land area: (1) which is owned or controlled by the source; (2) where the source regularly conducts activities necessary to the production of goods or services; (3) which is of a size no larger than reasonably necessary to conduct such activities; and (4) from which the general public is excluded by fence or other physical barrier. The term production area shall include but not be limited to the following:

1. materials handling and storage areas;

2. parking areas;

3. waste water treatment facilities;

4. solid waste disposal areas;

5. on site buildings and structures.

B. The production area exclusion shall not be applicable to a source whose purpose is to serve the general public (such as schools and hospitals, state and federal properties including military properties, or other public institutions) nor shall it be available to any part of a sources's property, even part of the production area, in which the general public has a right of access (such as public roads, navigable waterways or other lands in which the state or municipality has an interest).

C. An expansion of a source's production area after December 31, 1970 shall be allowed for the purposes of this provision only if the source demonstrates that the expansion is due to business or commercial factors and that the expansion is not sought to increase the

dispersion of the source's emissions.

2. Stack height and other dispersion techniques. The degree of emission limitation required of any source for control of any air contaminant shall not be affected by so much of a source's stack height that exceeds Good Engineering Practice or intermittant or supplemental control of air pollutants or by any other dispersion technique. This provision shall not apply to stack heights in existence, or dispersion techniques implemented, on or before December 31, 1970, except where pollutants are being emitted from such stacks or using such dispersion techniques by sources which were constructed, or reconstructed, or for which modifications were carried out after December 31, 1970.

A. The term "dispersion technique" means any technique which attempts to affect the concentration of a pollutant in the ambient air by:

1. Using that portion of a stack which exceeds good engineering practice stack height;

2. Using an intermittant or supplemental control strategy which allows varying the rate of emissions of a pollutant according to atmospheric conditions or atmospheric concentrations of that pollutant; or

3. Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

B. The preceding paragraph does not include:

1. The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

2. The merging of exhaust gas streams where:

a. The source owner or operator demonstrates that the facility was orginally designed and constructed with such merged gas streams; or

b. After July 8, 1985, such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of "dispersion technique" shall apply only to the emission limitation for the pollutant affected by such change in operation; or

c. Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emission control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the Department shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the Department shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

3. Smoke management in agricultural or silvicultural prescribed burning programs;

4. Episodic restrictions on residential woodburning and open burning; or

5. Techniques under Section II (A) (3) which increase final exhaust gas plume rise where the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.

C. "Good engineering practice" (GEP) stack height means the greater of:

1. 65 meters, measured from the ground-level elevation at the base of the stack;

2. For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable licenses or approvals required by state or federal air pollution control laws and regulations, Hg = 2.5 H, provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

3. For all other stacks not meeting the criteria of Section II (C) (2), Hg = H+1.5L, where Hg = good engineering practice stack height, measured from the ground-level elevation at the base of the stack, H = height of nearby structure(s), measured from the ground-level elevation at the base of the stack, L = lesser dimension, height or projected width of nearby structure(s), provided that the Department may require the use of a field study or fluid model to verify GEP stack height for the source; or

4. The height demonstrated by a fluid model or field study approved by the Department, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash,

wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.

D. "Nearby" as used in Section II (C) is defined for a specific structure or terrain feature and

1. For the purposes of applying the formula in Section II (C) (2) or II (C) (3) means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (1/2 mile), and

2. For conducting demonstrations under Section II (C) (4), means not greater than 0.8 km (1/2 mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height (H_t) of the feature, not to exceed 2 miles if such feature achieves a height (H_t) 0.8 km from the stack that is at least 40 percent of the GEP stack height determined by the formula provided in Section II (C) (2) or II (C) (3) or 26 meters, whichever is greater, as measured from the ground-level elevation at the base of the stack. The height of the structure or terrain feature is measured from the ground-level elevation at the base of the stack.

E. "Excessive concentration" is defined for the purpose of determining good engineering practice stack height under Section II (C) (4) and means:

1. For a source seeking credit for stack height exceeding that established under Section II (C) (2) or II (C) (3), a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard or an ambient increment. The allowable emission rate to be used in making demonstrations under this Subsection shall reflect the control technology requirement specified at Chapter 115 Section VI, or applicable emission standards, whichever is more stringent;

2. For sources seeking credit after October 11, 1983, for increases in existing stack height up to the heights established under Section II (C) (2) or II (C) (3), either a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, and eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality

standard or an ambient increment, or the actual presence of a local nuisance caused by the existing stack as determined by the Department; and

3. For sources seeking credit after January 12, 1979 for a stack height determined under Section II (C) (2) or II (C) (3) where the Department requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984 based on the aerodynamic influence of cooling towers, and for sources seeking stack height credit after December 31, 1970 based on the aerodynamic infuence of structures not adequately represented by the equations in Section II (C) (2) or II (C) (3), a maximum ground-level concentration due in whole or in part to downwash, wakes or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

These regulations shall be effective upon filing with the Office of the Secretary of State and shall supersede all previous regulations on this subject.

After public notice of May 18, 1988 and public record through June 17, 1988, the above regulation is adopted this 13th day of July 1988.

After public notice on August 2, 1989 public comment period through September 1, 1989 and an opportunity for public hearing, the above regulation is amended this 27th day of September 1989.

BASIS STATEMENT FOR JULY 13, 1988 : This chapter adopts regulations consistent with federal requirement concerning stack height and other dispersion techniques, such as merging of plumes. These regulations also define the area surrounding the source where ambient air quality standards do not have to be met.

BASIS STATEMENT FOR AMENDMENT OF SEPTEMBER 27, 1989 : Minor changes have been made to this regulation for consistency with federal requirements. No comments on the proposed changes were received by the Department.

AUTHORITY: 38 M.R.S.A., 590, 585-A

EFFECTIVE DATE: August 9, 1988
Amended: October 25, 1989